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USSR Report

AGRICULTURE

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UKRAINIAN NEWS^oAPER REVEALS CONCERN FOR ADEQUACY OF FEED SUPPLIES

[Editorial Report] In SIL'S'KI VISTI in Russian of 6 Jun 79 on page 1 concern has continued to be shown for the adequacy of livestock feed supplies. This concern has generally been shown though advice and admonition to consider a variety of alternative means for augmenting feed supplies. Editions published in the late spring and early summer special measures required in feed gathering. Examples included an early June paper with an article from Tarashchanskiy Rayon, Kiyevskaya Oblast, which urged the gathering of grass from along the roadsides, forests and cliffs and refers to smaller grass stands caused by this year's unfavorable conditions.

The appearance of three articles in August newspapers suggests that the need for such special measures continues. An early August article praises the work being done in Poltavskaya Oblast in gathering twigs, swamp grass and wild grass for feed. [Kiev PRAVDA UKRAINY 8 Aug 79 p 3].

This is followed by a mid-August editorial which states that those farms have acted correctly which have taken grass not only from the meadows but also from the forests, ravines, gullies, roadsides, parks and squares. [Kiev PRAVDA UKRAINY 14 Aug 79 p 1].

The employment of special measures continued into late August. An article from Chernigovskaya Oblast describes the gathering of grasses from swamps, roadsides, forests and wastelands in Repkinskiy Rayon. The article comments that just along the road from Repki to Gomel' there are more than a thousand people mowing with scythes. [Kiev SIL'S'KI VISTI 23 Aug 79 p 1].

As the time for harvesting of sugar beets and potatoes has drawn closer there have been numerous admonitions to agricultural workers to save the plant tops for livestock feed.

SIL'S'KI VISTI has further broadened the variety of suggested alternatives beyond the measures already mentioned. A late July edition carried a 1200 word article from Zaporozhskaya Oblast entitled "Rations, Enriched With Soya". The article carries with it a subslug which informs the reader that, "A ton of soya is almost a ton of meat. No one doubts the advantage of this crop, it's great role in feed production, and in solving the problems of

protein in the rations fed to livestock." The rest of the article is devoted to local examples of the advantages and technique of soya raising. [Kiev SIL'S'KI VISTI 25 Jul 79 p 2].

This is followed in August by a 1600 word article from Chernovitskaya Oblast entitled "Why the Soya Is Not Bearing Fruit Everywhere." Like a previous article this one cites local examples of positive experiences with raising soya for livestock feed. This article cites faulty agrotechnology as the reason that soya has not been utilized to greater advantage. [Kiev SIL'S'KI VISTI 10 Aug 79 p 2].

CSO: 1824

CALL FOR MORE EFFICIENT TREATMENT OF GRAIN FOR FORAGE

Moscow IZVESTIYA in Russian 6 Jul 79 p 2

[Letter from L. Razin and V. Chekashov, chairman and chief livestock expert respectively of Belinskiy Rayon's "Pobeda" Kolkhoz; V. Sheremet'yev, N. Kazin and M. Grin', chief livestock expert, chief and chief economists respectively of the Belinskiy Rayon'spolkhoz Agriculture Administration; A. Kursakin, director of the Belinskiy Interkolkhoz Mixed-Feed Plant; and L. Zarva, chairman of the oblast production association of interkolkhoz enterprises for the production of mixed feed and feed additives: "Expending Grain Forage Proprietorially"]

[Text] Penzenskaya Oblast--We are using an ever increasing amount of grain as livestock feed with every succeeding year. Of course, both the weight gains and milk yields are increasing, but not as rapidly as might be the case. A principal reason for this is that far from the best use is being made of the feed grain. A considerable amount of it is being consumed, to be blunt, senselessly and is failing to yield the benefits which we have a right to count on.

Take our Belinskiy Rayon of Penzenskaya Oblast. In a year its farms feed the animals 35,000 tons of forage grain. Only 22,000 tons of these are in the form of mixed feed. The remaining 13,000 tons undergo virtually no treatment and enrichment. We obtain almost 25 percent less in the way of weight gain and milk yield from such grain fed in pure form, as we say, than from mixed feed. The result is that we annually overexpend one-fourth of the grain. And if we take the precise estimates of the specialists--approximately 3,000 tons. Because of which we fall 1,000 tons of milk and 150 tons of meat short. Approximately 300,000 tons of grain are fed in pure form in the oblast as a whole. Consequently, approximately 70,000 tons of it is overexpended to no purpose.

It could be that some places lack the capacities for treating the grain. But here in Belinskiy Rayon there is an interkolkhoz plant capable of producing 40,000 tons of mixed feed a year. And the oblast as a whole has sufficient potential: there are almost 15 interfarm enterprises in operation in addition to several large-scale state plants. The former could annually prepare more than 600,000 tons of mixed feed--treat almost all the grain used as forage by the oblast's kolkhozes and sovkhozes. But last

year they produced only 143,000 tons of mixed feed. Less than one-fourth of what is possible.

So we have the following situation: on the one hand the grain is fed without having undergone the proper treatment, on the other, there is an idling of mixed-feed production capacity almost equal to that of the mixed-feed plants of the Ministry of Procurement in our oblast. What are the reasons for this?

IZVESTIYA has already written about some of them in the article "On the Departmental Boundary" (No 80, 1979). The main reason is that the interfarm plants are not being provided with the raw material. Take protein-vitamin additives (PVS). In accordance with the regulation in effect, it is the Ministry of Procurement enterprises which have to provide the interfarm industry therewith. But they are more concerned to expend protein-vitamin raw materials on the production of mixed feed themselves since mixed feed and not additives brings them their main profits. The situation is further compounded by the fact that the Ministry of Procurement enterprises themselves are short of protein-vitamin raw material, which is supplied mainly by agriculture. Thus we have the paradoxical situation: the manufacture of PVA has been entrusted to enterprises of the Ministry of Procurement, which cannot solve the protein problem independently. But the agricultural organs, on the other hand, are not responsible for the production of PVA: this, they say, is the Ministry of Procurement's concern.

All in all, instead of single responsibility there is dual lack of responsibility. The land producing the protein and the plants producing PVA on the basis thereof are in different departments and are simply not working at full performance one for the other.

We would go further: this kolkhoz or sovkhos or the other tries to hold on to peas, vitamin meal and other protein raw material for itself since there is no certainty that it will be fully supplied with balanced feed. Nor is there this certainty on the part of the agricultural organs, and they silently support the positions of the farms and do not seek out protein resources for the Ministry of Procurement enterprises.

This lack of coordination in the work of these departments is reflected throughout. Take the delivery of PVA to the remote interfarm mixed-feed plants. The Ministry of Procurement enterprises must ship the additives to their rayon grain-reception enterprises and transfer them to the interfarm mixed-feed plants from their warehouses or plants. The transfer price also includes the cost of unloading the railcars and loading the motor vehicles. And this, as a rule, is the only way the additives are sent to the interfarm mixed-feed plants: but they, they say, need the additives and will take them from the railroad themselves.

And they do take them. Workers are taken off their shift, production comes to a halt, and both their own and the kolkhoz motor transport is mobilized.

The extraplan expenditure, the railcar idling, the fines--they accept all this. The cars have to be unloaded and the motor vehicles loaded by hand. Part of the additives is scattered because of these transfers. As to how much is lost--both in quantity and quality--no one thinks about this.

Requests to workers of the Ministry of Procurement system--for mechanization of the unloading and loading of the additives and their temporary storage--remain unsatisfied.

Or take the times and regularity of the supplies. In the second quarter the Belinskiy Interkolkhoz Plant was to have been shipped 500 tons of PVA, but in 2 months--April and May--it was supplied with 100 tons. One-fifth. This is the customary picture for all times of the year and for all mixed-feed enterprises. How is it possible to count on regular supplies of fodder to the livestock sections under these circumstances?

The interfarm plants are incurring considerable losses because of such work, but the biggest losses are being incurred by the kolkhozes and sovkhoses--because of a drop in the quality of the fodder alone they are overexpending thousands of tons of grain and failing to obtain thousands of tons of meat and milk.

We do not wish the readers to be of the opinion that the Ministry of Procurement is to blame for everything. It is not so, although certain malfunctions are the fault of its workers. However, if we were in their place, we would surely act the same. For it is more profitable for the Ministry of Procurement enterprises to prepare both the mixed feed and PVA in large batches and to shift production from the manufacture of one product to another as rarely as possible. First they "push" the mixed feed (there is particular demand for this), and only then the PVA. Again it is more profitable to load and dispatch all this also in large batches. The interests of the rural plants remain a tertiary consideration. And not only the plants. The kolkhozes and sovkhoses also. Let us take a customary situation. The "Pobeda" Kolkhoz has to feed the young suckling pigs and weaning cow-calves. Vehicles are sent to the Kamenskiy Plant of the RSFSR Ministry of Procurement, but, we're sorry, this kind of mixed feed is not now being made here, we are producing a different kind. And at times mixed feed intended for cattle has to be given to calves and that produced for young pigs has to be given to hogs. In short, not as intended. And this is in any case an irrational waste of both grain and valuable additives.

Alongside the Belinskiy Interkolkhoz Mixed-Feed Plant, literally a few dozen strides away, is a grain-receiving center of the RSFSR Ministry of Procurement. Of course, in the interests of production it would have appeared necessary to build and utilize warehouses and drying and other capacities jointly--and storage of the grain forage, which belongs to the interkolkhoz mixed-feed plant, is a single matter. But, alas! Different departments! And alongside the grain-receiving center the Belinskiy Plant is building its own warehouse capacities and drying plants and installing its own loading

and unloading facilities. Even if the plants are far from the contemporary standard and the machinery and equipment is much worse--the majority of scientific research, planning and design forces resides in the Ministry of Procurement system. The Ministry of Procurement link also ultimately loses because of this separateness: it would be possible to do much more and better together, with common efforts. There are many instances of two bases of the same kind being developed and utilized in parallel alongside one another. And the losses on account of this are great.

And the main question: how to develop the mixed-feed industry in the future, it being in complete confusion because of this very separateness. Workers of the Ministry of Procurement are heading in the direction of the construction of giant enterprises. Yet given intelligent organization, it is more profitable to produce mixed feed at far smaller rural plants. For it is but an arm's length, as they say, to these from the field and from these to the livestock section. Long double hauls and superfluous loading and unloading, because of which also a considerable amount of grain is lost, are unnecessary. The same Belinskiy Interkolkhoz Plant has reduced the shipment of grain (a good 10,000 tons) and the return delivery of mixed feed by about 50 kilometers for half of the farms of the rayon. The saving in transportation alone is more than 1 million ton-kilometers or 5,000 motor vehicle runs. The vehicles released here have been understandably employed in conventional rural operations, and thanks to this, considerable losses of grain, fodder and other products have been avoided.

And, in general, in order to get closer to the crux of the problem, let us ponder: of what does mixed feed consist? Not only that which the inter-farm plants produce on the basis of PVA but also that which is prepared in accordance with other formulas at Ministry of Procurement enterprises. As a rule, more than 95 percent in weight and volume comes from plant-growing products. So why carry this 95 percent to giant enterprises over huge distances and then again carry it back in the form of mixed feed? Is it not more sensible to create instead of a single giant plant several smaller but, indisputably, well-equipped plants and deliver to them from a distance 5 percent of the raw material, while taking 95 percent on the spot? Figuratively speaking, not taking the grain machine to a handful of additives but, on the contrary, taking a handful of additives to the grain machine.

Small plants close to the village have close connections with the livestock sections and the zootechnical service. In addition, the grain also comes here directly from the combines: the waste is used to prepare full-ration granules. It is not fortuitous that attempts are being made worldwide to bring the mixed-feed industry closer to the field and the livestock section.

Essentially, the same process is underway here also. But it is being hindered, as we can see, by departmental separateness. This is also applying the brakes to the construction of rural plants, and where they have been built, as, for example, in our oblast, they cannot operate normally. At times one is simply amazed at how tangled are the simplest questions. Some

of the grain taken from the rayons to the elevators and grain-receiving stations of the Ministry of Procurement; subsequently returns to the inter-farm plants. But insofar as this grain is now Ministry of Procurement grain the mixed feed prepared therefrom at the interfarm plants is not attributed in gross production to the latter but to the Ministry of Procurement enterprises, which did not prepare this mixed feed. From whichever way you approach it there is senselessness and losses.

As a result all this lack of coordination is preventing the possibility of rationally organizing the treatment of grain forage and enhancing the efficiency of its use. As before, a considerable amount of grain is used as fodder in pure form, and, consequently, it is overexpended and the livestock sections are falling short in the production of livestock-raising products.

We are concerned about the situation that has come about. We are profoundly convinced that removing the causes of the loss of grain forage is not that difficult: it is merely necessary to perfect the management of the sector, and the mechanism of economic mutual relations. Were, for example, the entire grain-receiving and mixed-feed center to be in the single hands of one boss, who would have an economic interest in the final results--the production of livestock-raising products--would this boss really start to erect production capacities of the same type in parallel within a few dozen strides of each other? He would easily find it possible to correctly create and utilize his base in remote areas, at the stations and in the big cities and to supply those same PVA on time and without loss.

And let us look at it from another angle. In order for any sector to operate efficiently what is needed is a concentration of forces, capital investments and all resources and not their dispersal around a number of departments. So we believe that the time has come to unite the fragmented links of the mixed-feed industry. And more precisely--to create a financially autonomous production association for the preparation of mixed feed.

We have already said that agriculture produces 95 percent of the raw material for mixed feed. And the mixed feed itself is again prepared for agriculture. And it is evidently most sensible to entrust responsibility for its production to single hands. This will make it possible to settle a whole complex of production questions and to enhance the quality of the PVA and the mixed feed: this is currently one of the "scabiest" problems, and the constant conflicts of many years' standing of the workers of the two systems--the agricultural organs and the Ministry of Procurement--have not appreciably raised the quality of the mixed feed and the PVA. Unification, on the other hand, would make it possible to concentrate all the forces and resources of the sector.

A single boss would be concerned to take from the land more protein for the mixed feed. He would no longer be able to point the finger at anyone else: just supply the PVA, he says. As a result there would be an increase in the yield and efficiency both of the land and the mixed-feed industry, and

an opportunity would emerge for increasing the volume of treatment of the grain with the least expenditure and, consequently, of eliminating its losses.

Our oblast once sent the republic organizations proposals on the need for the creation in Penza of an association for the production of mixed feed, but they were not supported for some reason or other. As a result associations of the same type are being created and developed within the framework of two departments. We already know to what lack of coordination, what over-expenditure and what losses this leads. No, it is not production which must be "adapted" to the structure of management but the structure of management to production in order that it correspond to the new level of development of the production forces.

We cannot be reconciled with the fact that valuable forage--grain--is being lost and that the country is failing to obtain a considerable quantity of livestock-raising products. It is essential to do everything to fulfill with the least expenditure and as rapidly as possible the task set by the CPSU Central Committee July (1978) Plenum: insuring that all the grain used for the needs of livestock raising be fed in treated and balanced form.

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CSO: 1824

FEEDING OF RYE TO CATTLE

Feeding Denounced

Moscow ZAKUPKI SEL'SKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 2, Feb 79 n 40

[Text] Bread is the staff of life. The irrefutability of this saying first of all has been confirmed and is confirmed, naturally, by rye. Rye is such a crop that it simply would be impossible to imagine the fields of the central zone of Russia without it. It is not necessary to speak of its greatness. It has been extolled by many poets in poems and depicted by painters on canvases. It is therefore strange and painful to learn that certain agricultural figures have adopted an attitude toward it which simply creates astonishment in everybody.

The heads of some farms have put the valuable and vitally necessary rye ears on the same level as grass. And the rye is cut like grass. For example, in Kurskaya, Kalininskaya and certain other oblasts, rye production is planned below the established plan of sale to the state, while significant areas of it are mowed as fodder for cattle. Last year about 2 million hectares, or 40 percent of the planted area, of the winter crops were mowed for green fodder. Rye has also been cut for fodder purposes on large areas at Krasnosel'skiy Sovkhoz in Valenskiy Rayon of Kirov Oblast. After threshing 1,811 tons of rye, the farm sold about 125 tons, or 16 percent of the plan, to the state. At the same time, 298 tons of the new crop rye were fed to cattle.

In conclusion, certain farm directors should again remember:

Rye is grown not for cattle,
But for people; not in vain
Is it to be found in song and painting,
And ensconced as well on the state emblem.

Such Feeding Forbidden

Moscow ZAKUPKI SEL'SKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 8, Aug 79 p 28

[Text] Chief state inspector for purchases and quality of agricultural products for Falenskiy Rayon of Kirovskaya Oblast M.A. Khozvaykin has reported to the editorial office that the facts described in the critical comment "Pve Is not Grown for Cattle," published in our journal (No 2, 1979) actually did occur at Krasnosel'skiy Sovkhoz in Falenskiy Rayon. Sovkhoz director A.F. Limonov was the subject of discussion at the CPSU Rayon Committee.

The feeding of rye grain to cattle has been discontinued.

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CSO: 1824

INSTRUCTIONS FOR PREPARING, SOWING WINTER CROPS

Minsk SEL'SKAYA GAZETA in Russian 25 Aug 79 p 2

[Recommendations of the BSSR Ministry of Agriculture: "Completing the Sowing of Winter Crops on Schedule"]

[Text] Today over one-third of the gross grain production in the republic's kolkhozes and sovkhozes comes from winter crops. Leading farms, which utilize the entire complex of agrotechnical measures, collect stable harvests of winter crops each year.

The data from the republic's scientific-research institutes and many years of practical experience in leading kolkhozes and sovkhozes convincingly attests to the fact that the stability of the harvest of winter crops is directly related to degree to which the technological requirement for their cultivation are observed and particularly to the creation of the optimal conditions for good conservation during overwintering.

One of the most important conditions for achieving a large harvest of grain from winter crops is their distribution on fields included in crop rotations following the best predecessor crops. Prior to winter rye and wheat must develop a sufficient above-ground mass and a good root system. For this reason it is required that the predecessor enrich the soil with nutrients, improve the structure of the soil, keep the fields clear of weeds, soil pests and diseases and be harvested on schedule in order to leave time to cultivate the soil.

It is best to sow winter wheat after occupied fallow, clover beds and cereals-legumes as well as after early potatoes. Wheat should never be sown after stubble-field predecessors in order to avoid infection with root rot. Rye is not so easily infected with root rot and yield good harvests not only with occupied fallow as the predecessor, but also with non-fallow predecessors as well. A certain part of it will follow barley. In this case it is necessary to select plots on which barley is cultivated after interrow crops.

Especially high standards must be set for the quality of soil cultivation. The system of field cultivation must be directed at the maximal accumulation

of moisture and the more complete removal of weeds, at creating conditions for the uniform distribution of seeds on the area and at the proper depth, and at producing uniform and full-value shoots. For this reason, immediately following the harvest of the predecessor, the bound soil should be plowed with a plow having a skim coulter in a unit with a ring roller. Rolling that takes place at the same time as plowing breaks up large clumps in the still-moist soil instead of pushing them into the ground, which is what occurs after plowing. On light soils that are free from perennial weeds plowing should be replaced by surface cultivation to a depth of 10-12 centimeters.

Soil cultivation should be performed with great care. This year all farms have the opportunity to complete the operation using the PVK combined unit. The pre-sowing levelling and packing of the soil enables us to sow 97 percent of our seed at the optimal depth. The number of plants on a level surface exceeds that of plants on a non-level surface by 20-30 plants per square meter.

In order to create normal conditions for the formation of a large harvest of winter crops it is necessary to secure the introduction of a full dose of phosphorus-potassium fertilizers and organic fertilizers into the soil in a specific order. In connection with the insignificant removal of nutrients with the harvest and the low level of flushing of nitrogen into the lower strata of the soil, it is expedient to decrease its application to winter crops to a minimum this fall, leaving the application of the main dose of nitrogen for the spring, when the plants will begin to vegetate. The dose of phosphorus-potassium fertilizer should be established depending upon the level of the planned harvest, the amount of nutrients in the soil, and the biological characteristics of the variety. Nevertheless, it should be kept in mind that on the majority of soils the phosphorus doses for winter crops are within the limits of 60-90 kilograms per hectare of active substances; the potassium doses--60-70 kilograms per hectare. It is imperative to apply 10-15 kilograms per hectare of granulated superphosphate (active substances) into the rows with the seeds.

This year it is essential to improve the supply of organic fertilizer in the soil. Each hectare of winter crops sown on light soils or after stubble predecessors should receive 20-30 tons of organic fertilizer. This not only has an overall positive effect on the soil and the plant, but also encourages greater winter-hardiness in plants, thus significantly increasing the yield of grain.

An unconditional factor in raising a large harvest of winter crops is decreasing the soil acidity to its optimal. Research and practical experience show that on acidic soils winter crops overwinter more poorly, acquire more infections during the spring, utilize the natural fertility of the soil more poorly and yield a smaller harvest. For this reason, prior to the beginning of sowing on each kolkhoz and sovkhoz the fields with the high rate of acidity must be limed.

The high effectiveness of fertilizers and liming materials can be achieved only through their uniform application. Taking this into consideration,

before beginning operations each enterprise should carefully adjust its machinery and during the process of applying fertilizers it should maintain constant controls over and evaluate the quality of the work being done.

Supplying each enterprise with quality seed for the 1980 harvest is one of our most important goals. In the days remaining before sowing begins things should be organized in such a way that each kolkhoz and sovkhoz be fully supplied with quality seeds of regionalized and promising varieties. The hot and dry weather during the spring and summer had a negative effect on the formation of the grain harvest and on the sowing qualities of seed on many farms. In comparison with previous years, the seed is more puny and smaller and more greatly infected with fusarial wilt and other diseases. For this reason, during the sorting of seeds an attempt should be made to have the weight of 1,000 seeds of winter rye of tetraploid varieties equal 38-40 grams, of diploid varieties--24-30 grams, and of winter wheat--36-38 grams.

In attributing a principal importance to the physiological maturity of the seeds it is essential that each farm organize their air-heat warming and moisture conditioning in active-ventilation facilities with the aim of raising the energy of germination. In order to avoid the infection of the plant with root rot and other diseases, all conditioned seeds scheduled for sowing this fall should be treated with granosan (mercurial fungicide) and a dye or 80-percent TMTD. When disinfecting winter wheat the norm for granosan is based on 1.5-2 kilograms per ton of seeds. Winter rye can be treated with granosan as well as with TMTD (1.5 kilograms). In order to be highly effective, the chemical treatments of the sowing material should be completed 5-10 days before sowing. In order to raise the resistance of winter crops to lodging they should be treated with TUR simultaneously. A 10-percent water solution of TUR should be added to the fungicide at a rate of 10 liters per ton of seeds.

It is important to sow conditioned seed of winter rye and wheat from the transitional fund. When doing this it is expedient to mix it with the same amount of seed from the new harvest.

It is very important to complete sowing by following an optimal agrotechnical schedule, which in every zone must be determined by the duration of the period of spring vegetation, the biological peculiarities of crops, the fertility of the soil, and the development of weather conditions. The experiments of scientific institutions and examples of leading enterprises demonstrate that the best time to sow winter crops in the republic is the first half of September, with some variation in both directions depending upon the weather reports. This year we can recommend the following sowing schedule: for the northern zone--1-20 September; for the southern zone--5-25 September.

It is recommended that each kolkhoz and sovkhoz establish the sowing rate separately for each field and plot depending upon the fertility of the soil, the amount of fertilizer that is applied and the biological characteristics

of the variety. On the basis of numerous experiments in various soil-climatic zones of the republic and of the experience of cultivating winter crops on leading farms, the following should be considered the optimal rates:

On mineralized soils:

--for the tetraploid Belta variety of winter rye--4 million to 5 million germinated seeds per hectare;

--for diploid varieties--5 million to 6 million;

--for Mironovskaya-808 winter wheat--from 4.5 million to 5.5 million;

On peat-swamp lands:

--for Belta winter rye--from 3 million to 3.5 million germinated seeds per hectare; for Mironovskaya-808 winter wheat--from 3.5 million to 4 million seeds.

It should be kept in mind that the weight norms for sowing are determined on the basis of the weight of 1,000 seeds and on the sowing capability of the seeds. The smallest sowing rate is recommended for sowing on highly fertile ground or when the full fertilizer dose is used; the highest rate--on the least fertile soil.

A mandatory condition for quality sowing is the strict observation of technical conditions during regulation of machines and the careful adjustment of their working organs and mechanisms for an optimal work regiment.

As in spring sowing, each farm should create sowing units and supply them with permanent sowing personnel. It should develop an operational working plan and schedule-route documentation for moving soil-cultivation and sowing units. With the aim of raising responsibility for strictly observing technological processes it is essential to process operations daily and to make an evaluation on their quality. The final acceptance of fields should take place when shoots have appeared and special committees should be created on all farms to perform this function.

It is the task of the agronomic service to more effectively utilize the productive potential of winter crops next year.

8228

CSO: 1824

MINIMAL TILLAGE TO BE STRESSED IN THE UKRAINE

[Editorial Report] In the agricultural newspaper SIL'S'KI VISTI in Ukrainian, several articles have appeared since mid-July directing readers' attention to the benefits to be derived from minimal tillage of the soil. This involves increased use of subsoil (moldboardless) plows. At least nine articles have appeared in this series which bears the umbrella title of "We're Making Friends With the Field via the Subsoil Plow" [Zdruchemo Pole z Ploskorizom] and the sub-title "Reflections on Tilling the land." The series begins with a lengthy four part sub-series by Poltavskiy Obkom First Secretary F. T. Morgun. Each of four parts is several thousand words in length. The three paragraph sub-slug informs the reader that every drought or another adverse hydrometeorological situation has its effect on two harvests: on the crop presently maturing and on the crop for which the agricultural workers are now preparing. The introduction regrets that the grain growers have so little opportunity to affect the crop situation. If they could more fully rule the land and adapt their crops to the whims of the weather they could counteract the harmful effects of the drought. The five year experience of the kolkhozes, sovkhozes and scientists of Poltavskaya and other oblasts is set forth. At the end of the fourth and final article the editorship adds a postscript inviting specialists, agricultural managers and agronomists to express their thoughts relating to questions on soil tilling raised in Morgun's sub-series. [Kiev SIL'S'KI VISTI in Ukrainian 17 Jul 79 p 2, 18 Jul 79 p 2, 20 Jul 79 p 2, 21 Jul 79 p 2]

In mid-August the first of the invited followup articles is published Academician V. Remeslo, director of the Mironovskiy Wheat Institute leads the parade of those supporting the new agrotechnology based on the Poltavskaya Oblast experience. Remeslo's article entitled "The Future of Fieldwork Is With the Subsoiler" is also interesting since he reveals therein at least one major opponent as well as several proponents of Morgun and the new system. He cites the sharply negative position of the head of the board for crop raising in the Ukrainian Ministry of Agriculture. [Kiev SIL'S'KI VISTI in Ukrainian 15 Aug 79 p 1]

At least two of those whom Remeslo cites as staunchest supporters of the new ideas, erosion scientists M. K. Shykula and M. M. Myloserdov publish articles of their own on the subject during the latter part of August. Professor

Shykula, head of the chair of soil science and geology at the Ukrainian Agricultural Institute comes forth with a two part sub-series entitled "Keys to the Fertility of the Field." Each of Shykula's articles is about 2,000 words long. The second article contains a table comparing yields after moldboard and moldboardless working of the soil to greater and lesser depths. [Kiev SIL'S'KI VISTI 21 Aug 79 p 2, 22 Aug 79 p 2]

Near the end of August Myloserdov follows with an 1,800 word article from Khersonskaya Oblast. The article, entitled "An Important Reserve in Crop Raising," concluded by arguing against heavy disking and stubble mulching in the southern Ukraine. [Kiev SIL'S'KI VISTI in Ukrainian 28 Aug 79 p 2]

Most recently the series was augmented by a 1,600 word article from Cherkas-skaya Oblast entitled "Moldboardless Tilling in the Forest-Steppe," by . Rubin and P. Ruban. This article like most of its predecessors in this series gives much detail on technique and a myriad of local examples. This piece is the most recent but not the only one to point out that moldboardless tilling of the land is a sound technique for the forest steppe as well as the steppe zone. [Kiev SIL'S'KI VISTI in Ukrainian 13 Sep 79 p 2]

CSO: 1811

WIDER UTILIZATION OF CATCH CROPS URGED

Minsk SEL'SKAYA GAZETA in Russian 4 Jul 79 p 2

[Article by V. Shlapunov, deputy director of the Belorussian Scientific-Research Institute of Agriculture: "Utilizing Interrow Crops More Widely"]

[Text] The continuous dry weather will decrease the yield of agricultural crops on plowed land, hay lands and pastures. For this reason it is necessary already today to take measures to maximally increase the production of feed through the use of catch crops. This will permit us to prolong the feeding of animals using green mass by 20-30 days, thereby curtailing expenses for expensive forage that is procured for winter. For repeat crops (afterharvest) fields can be used that have been cleared of annual grasses, early potatoes and grains. If the farm has some sparse stands of perennial grasses that were used last year, after the first cutting it is expedient to sow the land in catch crops. Thus it will be possible to sow repeat crops on some of the fields that were occupied in early crops by the first half of June.

In tests over a 3-year period at the Zhodino Experimental Base, Smolevichskiy Rayon, when crops were sown on 15 July (after annual grasses) the following yields were obtained: 150-180 quintals of green mass per hectare of feed lupine and a vetch-oats mixtures; 216 quintals of a maple pea-oats mixture; 206 quintals of annual rye grass; 212 quintals of sunflowers; 240 quintals of white mustard; 300-350 quintals of oil-bearing radishes, winter wild cabbage and winter rape. During these years turnips yielded a total mass of 463 quintals, including 226 quintals of leaves and 237 quintals of roots.

If sowing took place at a later period, there was always a decrease in the yield. There was no decrease in the productivity of oil-bearing radishes and white mustard sown during the period of 15-30 July. It would not be expedient to sow feed lupine, spring vetch, maple peas and sunflowers in August under the conditions existing in the central and northern zones due to the extremely low yields produced.

However, it should be kept in mind that the earlier the crop is sown, the higher the yield will be.

When the supply of moisture is normal for the soils in the southern rayons of the republic all of these crops still have time to produce a harvest when sown not only in July but also in the first 10 days of August, although the yield will be smaller.

The acceptable schedules for sowing afterharvest and catch crops are presented below:

<u>Crop</u>	<u>Zone</u>		
	<u>Northern</u>	<u>Central</u>	<u>Southern</u>
	Sowing should take place no later than:		
Lupine, spring vetch	15 Jul	20-25 Jul	5-7 Jul
Peas	18-20 Jul	25-30 Jul	5-10 Jul
Annual rye grass	25-30 Jul	1-5 Aug	5-10 Aug
Sunflowers	15-17 Jul	20-22 Jul	25 Jul-1 Aug
Turnips for root crops and green mass	15 Jul	20-25 Jul	1-5 Aug
Turnips for green mass	25 Jul-1 Aug	5-7 Aug	10-12 Aug
Oil-bearing radishes, white mustard, winter rape, winter wild cabbage, spring rape, perko [Translation unknown]	1-5 Aug	10-12 Aug	10-15 Aug

However, it should be kept in mind that the earlier the crop is sown, the higher the yield will be.

On farms most of the fields from which annual grasses have been harvested are sown in winter crops. Here it is also possible to produce a second harvest prior to the sowing of winter crops, but rapidly-maturing crops should be utilized: oil-bearing radishes, white mustard, winter rape and winter wild cabbage. When sown during the first half of July they are ready to harvest by the end of August and then the field can be used for winter crops.

When selecting fields for summer crops preference should be given to those that are best supplied with moisture.

The basic method for cultivating the soil for afterharvest and catch crops is plowing accompanied by packing and harrowing. After the first mowing sparse perennial grasses are supplementarily sown with annual rye grass without the preliminary cultivation using disc sowers. It is more convenient to perform these operation after a rain, when the disc coulter sows the seed better.

A second harvest is possible only if fertilizer, especially nitrogen fertilizer, is applied to the soil. The rate of nitrogen fertilizer for spring vetch and feed peas is 40-50 kilograms per hectare and 80-90 kilograms per hectare for the remaining non-leguminous crops.

This year many farms used annual rye grass as an intermediate crop for undersowing in mixtures with other annual grasses. After the harvesting of the cover crop, rye grass will provide a full-value second and even a third harvest if there is precipitation (on mineralized soil) only if after the mowing of the cover crop an application of nitrogen fertilizer is made in a dose of 45-60 kilograms of active substances per hectare.

Afterharvest and catch crops have a shorter and less favorable vegetative period as compared to spring crops. The sowing rate for crops such as lupine, vetch-oats and peas-oats mixtures should be increased by 10-15 percent in comparison to the rate during spring sowing. Oil-bearing radishes, white mustard and annual rye grass are sown at a rate of 25-30 kilograms of seed per hectare; winter rape and winter wild cabbage--7.5-10 kilograms; perko--10-15 kilograms; spring rape--12-15 kilograms; sunflowers--30-40 kilograms; and turnips--4 kilograms of seed per hectare. All of the recommended cruciferous crops have small seeds. For this reason, in order to avoid sowing them deeper than 2-3 centimeters the operation should take place on packed soil using sowers with a hoe coulter. If turnips are sown in August in the central and northern zones they do not have time to develop a good harvest, so that they can be sown using the row method for the production of green mass alone.

Harvesting or grazing of legumes and their mixtures with oats, as well as sunflowers should be completed before the onset of frost. Crucifers can continue to develop until 15-20 October. Catch crops are used as supplementary green feed as well as for the preparation of silage and dehydrated feeds such as grass meal and granules. Cut straw should be added for silage. This year the expansion of afterharvest and catch crops is a very important source for replenishing feed stocks in the republic's kolkhozes and sovkhoses.

8228

CSO: 1824

EXPANDING SOYBEAN CULTIVATION, PARTICULARLY IN AMURSKAYA OBLAST

Moscow ZAKUPKI SEL'SKOKHOZYAYSTVENNYYKH PRODUKTOV in Russian No 8, Aug 79
pp 34-35

[Article by I. Safonov and D. Tenyayev, state inspectors of the USSR Ministry of Procurement: "Soya--A Most Valuable Crop"]

[text] At the July (1976) Plenum of the CPSU Central Committee attention was given to the production of leguminous crops as essential raw materials for the food and mixed-feed industry. In his report at the Plenum General Secretary CC CPSU Comrade L.I. Brezhnev noted: "Recently, as you know, a decision was made on the soybean. We consider it as the first step in the organization of wide-scale production of this most valuable crop. It is necessary to look for ways of expanding its sowing, especially on irrigated areas, and to improve the technology of its cultivation."

Among legumes, the soybean occupies an exclusive position because of its manifold use. A basic feature distinguishing it from other legumes is the chemical composition of the bean, which contains from 36 to 44 percent of protein and from 16 to 27 percent of fat.

Sowing of the soybean became widespread in our country only after the Great October Socialist Revolution (beginning in 1925). The chief place in sown areas and also in gross and commercial production of this crop (99 percent) belongs to the Far East (principally Amurskaya Oblast), where climate and soil conditions favor its cultivation. Soybean production on kolkhozes and sovkhoses is primarily of a commercial character, as the entire grown crop, with the exception of seeds, is sold to the state.

A significant expansion of sown areas and increased production of the soybean in the Far East began in 1950, at which time 123,000 hectares were assigned to it (including 65,000 hectares in Amurskaya Oblast). In 1978 this crop already took up 835,000 hectares (including 501,000 hectares in Amurskaya Oblast).

The volume of commercial production has also grown significantly. Whereas in 1950 kolkhozes and sovkhoses had sold 48,000 tons to the state, including 22,000 tons from Amurskaya Oblast, in 1977 there were sold to the state 296,000 tons, including 230,000 tons from Amurskaya Oblast.

At Partizan Sovkhoz in Tambovskiy Rayon of Amurskaya Oblast, soybean sowings occupy each year about 7,000 hectares; average yield in the Ninth Five-Year Plan was 12 quintals per hectare. The five-year plan of sales to the plan was fulfilled 107 percent. In 1976, the sovkhoz sold to the state 6,700 tons, with the plan calling for 5,400 tons, or 125 percent. A particularly good crop was obtained in 1975--20.6 quintals per hectare.

The most experienced machine operators, combined into links, are engaged in the cultivation of the soybean at Partizan Sovkhoz. The sovkhoz was awarded the title "Farm with a High Standard of Agriculture"; it has received the high government award--Order of the Labor Red Banner. In response to the Motherland's high award, sovkhoz personnel undertook higher commitments for the 10th Five-Year Plan--to harvest 17-18 quintals of soybeans from each hectare.

There is to be found in Tambovskiy Rayon of Amurskaya Oblast the All-Russian Soya Scientific-Research Institute, which is conducting major selection work on its experimental-production farm. The soybean is cultivated on an area of 3,200 hectares, or on 25.6 percent of the plowland. It is placed after grain crops (spring wheat and barley) on deep August and September plowed fields. Seeds prior to sowing are treated against fungus diseases and are carefully graded by size. The highest yield varieties are used in sowing--VNIIS-1, VNIIS-2, Amurskaya 310 and Yantarnaya--simultaneously, as a rule, with application of mineral fertilizer.

During the Ninth Five-Year Plan (1971-1975), the average annual yield at the institute was 12.7 quintals per hectare, but in 1975 it was 21.8 quintals per hectare. Such results were achieved through the work of mechanized links and a high standard of agriculture.

Soybean production in the Far East is profitable both for the state and for the farms. In 1975, the production cost of a quintal of seeds at Partizan Sovkhoz was 6.54 rubles (planned cost 11.55 rubles). On selling to the state about 13,000 tons, the farm made a profit of 3,252,000 rubles, which was 69 percent of the total amount obtained from the sale of plant-growing and animal-husbandry products.

The experience of pace-making rayons, farms and scientific institutions shows that kolkhozes and sovkhozes have big reserve capabilities for increasing soybean yield. So far with an inadequate level of soybean production and with planting of low-quality seeds, sales plans for this crop are not being fulfilled year after year by many farms, while agricultural and agricultural organs sometimes tolerate this.

The discovery of additional resources of commercial soybean and the contracting of its sowings constitute an important task of the personnel of state inspection for purchases and quality of agricultural products. They must exercise an influence on the operation of kolkhozes and sovkhozes, seeing to it that the level of soybean production guarantees the fulfillment of contractual agreements both for plan and above-plan sizes of purchases.

The party and the government have implemented a series of measures to stimulate the production and procurement of this legume. A major role in increasing production and procurement of soybeans, particularly in the Far East, has been played by the establishment for kolkhozes, sovkhozes and other state agricultural enterprises, beginning with the 1975 crop, of additional payments in the amount of 50 percent over and above the purchase price for that amount sold to the state above the mean yearly level of sales in the three preceding years.

A most important measure is counter-sale of mixed feed to kolkhozes, sovkhozes and other agricultural state enterprises for their sale of soybeans to the state computed at 70 kilograms of mixed feed for each quintal credited to the plan and 140 kilograms for above-plan sales.

The counter-sale of mixed feed has been made the responsibility of the USSR Ministry of Procurement organization.

The mixed feed allocated to union republics by the Ministry for counter-sale is being strictly used according to direct designation. It is issued by mixed-feed plants, grain receiving enterprises and sales depots both directly to the recipient and through shipment to his address.

Enterprises issue mixed feed in accordance with the following conditions:

25 percent of the amount of mixed feed intended for a farm it will receive following conclusion and recording of contractual agreements, but not later than 31 March of a current year;

25 percent of the amount of mixed feed intended for the farm--following soybean sowing plan fulfillment, but not later than 30 June of a current year;

the remaining quantity of mixed feed--in proportion to the sale of soybeans to the state, but not later than 31 March of the following year while crediting prior-issued advance payment in amounts for its clearing off.

Beginning with the 1978 crop, kolkhozes, sovkhozes and other state agricultural enterprises cultivating soybeans for the first time are to be paid for three years an additional payment of 20 percent above the soybean purchase price for the sale of the grain of this crop to the state.

Together with increased production and yield of soybeans there is the need for improvement of its quality. Many kolkhozes and sovkhozes in Amurskaya Oblast, as shown by a check, turn over soybeans to grain receiving enterprises with a higher degree of moisture, contamination and with bruised and frost-damaged beans. The reduction in the quality of beans results in farms losing much money because of reduced prices. Moreover, it is difficult to produce high-quality oil from such raw material.

Post-harvest working up of soybeans on farms is very important and economically advantageous. Upgrading quality and improving production--such is the task of heads of agricultural and procurement organizations.

Special attention should be paid to soybean seeds in storage. Humidity and temperature are of decisive importance in storage of the beans. Thanks to good soybean hygroscopicity, the relative humidity of the air exerts a marked influence on its moisture. In order not to permit moistening, soybeans should be ventilated with the outdoor temperature not exceeding 3-5° and with a relative air humidity of not more than 70 percent. When pouring soybeans for storage the height of the mass should not exceed with a humidity of 12 percent--3 meters, with 12-14 percent--2 meters, with 14 to 16 percent--1 meter and with more than 16 percent--0.5 meters. When the air temperature is above 15° the aforesaid norms for height of the pile are reduced by one-third.

This crop requires the use of dry storage facilities with wooden or asphalt floors. During storage on a cement or brick floor, the bottom layer easily picks up moisture and becomes subject to mold and spoilage. It is recommended that soybeans be placed in storage facilities equipped with apparatus for active ventilation in order to bring them to a stable condition in storage.

In order to better preserve soybeans, they should be cleaned of bruised and damaged seeds. When moving or looking after them, methods should not be used that are connected to damaging of the seed coats (for example, big drops in moves on conveyors).

State inspectors for purchases and quality of agricultural products and directors of grain receiving enterprises must take necessary steps to strengthen control over the fulfillment by kolkhozes and sovkhoses of soybean sales plans and contractual obligations and to achieve all-round strengthening of state discipline.

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NEW DEVELOPMENTS IN VETERINARY SANITATION

Moscow VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 7, Jul 79 signed to press 19 Jun 79 pp 58-60

[Article by A. A. Polyakov, VASKhNIL academician: "New Developments in the Science of Veterinary Sanitation"]

[Text] One of the typical features of modern animal husbandry is its change-over to an industrial basis. The concentration of a large number of animals on a limited territory of farms of the industrial type has raised problems which kolkhoz production did not have to solve before. Veterinary specialists have been faced with tasks of ensuring that the farms are reliably protected from infectious and invasive diseases, preserving the livestock and increasing its productivity. Therefore it is necessary to step up significantly the scientific research in veterinary sanitation in the center and on the periphery, taking into account the peculiarities of various zones of our country.

A need has arisen to implement on the farms of the kolkhozes and sovkhoses mass preventive measures based on the application of means of specific prevention and mass treatment of the animals' habitation. Veterinary sanitation on these farms has become an indispensable part of the work for raising animals and obtaining animal husbandry products that are of a high sanitary quality.

The achievements of veterinary sanitation in our country are significant. Research on problems of this science is being conducted in many institutions that are coordinated by the All-Union Scientific Research Institute of Veterinary Sanitation. We have also created production organizations which are introducing scientific achievements into practice, particularly autonomously financed veterinary-sanitary detachments, plants for processing animal husbandry wastes and obtaining meat and bone meal, oblast and city veterinary sanitation stations, disinfection detachments and so forth. From day to day they are eliminating everything dangerous which can harm the health of man and cause damage to animal husbandry.

During the first years of the Soviet regime the young republic was faced with the critical problem of maintaining and further developing animal husbandry,

which was suffering from many infectious and invasive diseases -- plague and widespread pneumonia in large horned cattle, glanders of horses, foot-and-mouth disease, and anthrax. Veterinary agencies took decisive measures to eliminate sources of infection and to protect animal husbandry.

At that time there was the crucial problem of disinfecting raw material of animal origin, both domestic and that which was shipped in from abroad. The positive experience of the laboratory, which was organized in 1928 in the system of the People's Commissariat of Agriculture of the USSR, in examining leather raw material for anthrax with the help of a precipitation reaction by the laboratory method served as a basis for creating similar institutions throughout an extensive territory of the country. The widespread network of laboratories annually examines tens of millions of hides, discovering the hides of animals that have died from anthrax and not allowing them to be processed. Because of their activity there has been improvement in the veterinary and sanitary condition of the raw material bases and plants for initial processing of leather raw materials. Moreover, humans no longer suffer from anthrax at all.

The organization of the laboratories was preceded by a large amount of research work on the part of Soviet scientists who created a theory about the phenomenon of precipitation and developed technology for examining raw material of animal origin. With the appearance of a precipitation reaction of the hides that have been damaged because of anthrax, there arose a need to search out methods of disinfecting raw materials not only when there was evidence of anthrax, but also of other infectious diseases. In order to develop methods of disinfecting leather raw materials, wool, hair and other kinds of raw materials of animal origin, they created a laboratory of veterinary sanitation which was later reorganized into the All-Union Scientific Research Institute of Veterinary Sanitation (VNIIVS). They perfected methods of disinfecting leather raw material and decontaminating the animals' premises, manure, and also other animal husbandry facilities with aerosols. They designed the DUK and LSD machines which have been used for many years on the farms of the kolkhozes and sovkhoses. With the organization of the VNIIVS a large amount of attention was devoted to problems of synthesis of disinfectants and the design of disinfection equipment.

The institute is conducting research on disinfecting animal husbandry facilities when there are infectious diseases caused by microbes, viruses and fungi, and also for disinfecting raw material of animal origin. Work is being carried out successfully for the sanitation of milk and meat, the decontamination of manure, and entomology.

In their microbiological research the VNIIVS and other veterinary scientific research institutes have studied the survival rate in the external environment of causative agents of tuberculosis, ringworm, Aujeszki's disease, salmonella, erysipelae of hogs, pullorum infection, pasteurellosis, plague, smallpox and others. The causative agents of foot-and-mouth disease, hepatitis of ducks and plague of poultry were comprehensively investigated. At

same time systems have been developed for decontamination from these diseases and new means have been suggested.

Veterinary and sanitation measures for bee hives were recommended, particularly systems for decontaminating them from nosematosis, follicular propagation, fungal and other diseases of bees, which made it possible to determine the sanitary condition of the hives and implement measures for improving it. A good deal of attention was devoted to the study of aerosols which can be used for decontamination. The task was set to find decontaminating agents which in aerosol form would destroy pathogenic microorganisms without exerting a similar effect on the organisms of the animals. As a result of numerous experiments, lactic and oxalic acids, triethylene glycol, resorcinol and many others turned out to be suitable. In order to reduce the expenditure of disinfectants for decontamination, aerosols began to be applied in the absence of the animals, using fluoride of lime, formaldehyde and caustic soda.

It proved promising to develop formulas of chemical agents in aerosols and balloons without propellants in order to fight against psoroptosis in rabbits and sheep, miasma of animals, to treat mastitis in cows, to combat rodents in the animal premises, to combat varroatosis of bees, demodicosis, hematopinososis and to disinfect the hives and bee-keeping equipment.

In recent years research has been developed for mechanizing the decontamination of animal husbandry facilities. Design work has been done which makes it possible to design aerosol equipment which can be used under production conditions to disinfect animal husbandry facilities with aerosols.

Extensive research is being conducted on mycotoxicosis of animals at many scientific research veterinary institutions. Fusariotoxosis, stachybotryotoxosis and dendrodochyotoxosis are being studied for the first time. Up to 20 mycotoxicoses which cause diseases in animals have already been recorded. Mycotoxins have been studied more -- aflatoxin, fusariotoxin, and ochratoxin; they have discovered such mycotoxins as patulin, rubrotoxin, penicillic acid and others. The main directions for mycology and feed sanitation are to improve existing methods and find new ones for veterinary sanitary control over various feeds. To this end many methods have been suggested for sanitary control and evaluation of the quality of feeds -- haylage, silage, grain, mixed feeds and so forth.

Soviet scientists have developed a complex of sanitary and hygienic measures that provide for obtaining milk that is in a good sanitary condition and delivering it to the plants. Means have been studied and technology has been suggested for applying them for disinfecting milking equipment and fitting, milking halls on complexes and also equipment and fittings at dairies. Express methods have been developed for determining the sanitary quality of milk.

For veterinary sanitation of enterprises of the meat industry and for veterinary sanitary expert evaluation of meat, research has been done which

makes it possible to introduce the method of indicating microorganisms with the help of fluorescing antibodies. It has accelerated the process of diagnosis more than 50-fold. Methods have been suggested for detoxifying the mycotoxins in meat that has been contaminated with toxic fungi and pesticides. They are studying questions of indicating heavy metals in meat -- mercury, lead and cadmium -- and also the conditions for preparing and transporting livestock to the meat combines.

It has been established that various nonspecific (stress) effects during shipment and preslaughter delivery of animals to the meat combines exert a marked effect on the quality of the meat and its storage. In order to reduce these phenomena and avoid losses of slaughtered weight, it is necessary to construct regional and interkolkhoz slaughtering points, whose utilization will make it possible to reduce long-distance shipments of animals to meat combines.

The most important task of the veterinary service is control over the residuals of toxic chemicals in the environment. Certain toxic substances are capable of remaining in the soil for a long time. They are assimilated from the soil by plants and then accumulated in the organs and tissues of agricultural and wild animals. Especially dangerous are chlororganic insecticides, mercury and its compounds, cadmium, lead and arsenic. The VNIIVS and other scientific research institutions have developed methods of indicating chemical substances in feeds, which make it possible to prevent their consumption by the animals.

Large and complex problems are being resolved by scientists and veterinary specialists in our country. Prevention of diseases, elimination of sources of agents causing infections and invasions, the struggle for high quality of products and raw material of animal origin and the implementation of measures for protecting nature -- this is a short list of the areas of scientific research and practical activity in veterinary sanitation. The tasks of scientists working in this area are great and responsible. Their recommendations are being implemented and are helping to solve problems related not only to material values, but also to the protection of the health of humans.

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